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ABSTRACT

CURMIS (Curriculum Management Information System) is a conceptual system, the framework of which is designed to identify and reveal relationships among complex related interacting phenomena. This paper is a description of the system which will centralize and make conveniently available information needed for developing and monitoring instructional programs. Emphasis is placed on the long range objectives of providing pertinent data in the following areas: 1) Curriculum and Instruction (PPBES, cost control and cost benefits; testing programs; organizational structure; and human relations programs); 2) Textbook Operation (acquisition and control); and 3) Research and Evaluation. Description of the four stages in implementing this curriculum management system is included. A Prospectus of a design to assist the James Madison Memorial High School in Madison, Wisconsin, in the evaluation of its program outlines one model by which high school and curriculum department personnel can team to conduct program evaluations. (SHM)

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CURMIS

CURRICULUM MANAGEMENT INFORMATION SYSTEM

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MADISON PUBLIC SCHOOLS
Madison, Wisconsin

November 13, 1972

RATIONALE:

CURMIS is a conceptual system that has a carefully engineered framework designed to identify and reveal relationships among complex related interacting phenomena; in effect, to reveal the whole where wholeness otherwise might not be thought to exist. Such a system consists of categories abstracted from the existential phenomena the system is designed to describe and classify, categories which can be readily discussed and manipulated at consistent, clearly identifiable levels of generality and which can be developed from different perspectives. The utility function of CURMIS is realized tnrough the definition of outputs from the educational system. Its decision structure turns upon the following points:

. A plan for gathering and using data: It provides the means for converting available measures such as learning time, student achievement, teacher inputs, and instructional inputs into net values realized by the educational system.

. An explicit criterion function: The criteria function relates to the gross-net utility of all student outputs.

. A set of decision rules for achieving the criteria: The mutually agreed upon decision rules for achievin these criteria must be evaluated in an ongoing basis as to their effectiveness in providing such criteria.

. A utility function which relates system inputs and system outputs to value scale of society: The underlying assumptions used in establishing a set of decision rules also require constant reevaluation. These assumptions are based on a conservation set (conservation of mass, momentum, and energy), a static steady state set (identity, security, stimulation), or a dynamic set (acceleration, novelty, diversity), or a combination of all three sets.

Just as a conceptual system has structure; so does it perform functions. In curriculum, then, it facilitates the following: (1) the identification of problems and questions presumably having relevance to planning any instructional program; (2) the clarification of the types of inquiry likely to be productive in dealing with these problems and questions (i.e., empirical-inductive or theoretical-deductive or some combinations of the two); (3) the relevation of possible connections among these problems and questions; (4) the identification of promising data-sources for dealing with these problems and questions; and (5) the initiation of processes designed to reveal the relevance of these sources and of data extracted from them to the problems and questions classified by the system.[1]

Curriculum is the most significant input into the total CURMIS system because it:

. Reflects purpose and educational objectives of the school district.

. Delineates the ways in which the student population is modified while passing through the system.

. Relates decisions about staff, facilities, equipment, service flow to the total learning environment.

. Relates directly to decision structure through twin phases - transmission and allocation.

. Serves as a sequencing model for learning based upon subject matter, type of learner, and teaching method.

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1. Goodlad, John I., "The Development of a Conceptual System for Dealing with Problems of Curriculum and Instruction", Eric Document Contract No. SAE-8024, Project No. 454, H.S. Department of Health, Education, and Welfare.

PURPOSE:

CURMIS is a curriculum management information system which will centralize and make conveniently available information needed for developing and monitoring instructional programs. It should, therefore, encourage systematic program planning and development based on the assessment of needs, and encourage rational decision-making on the basis of cost-benefit analysis.

Major Long-Range Objectives of CURMIS:

CURMIS is seen as a two-to-four year effort with emphasis placed on developing, with the assistance of the management information department, an educational system that will package and provide pertinent data in the areas of:

I. Curriculum and Instruction
   - A. PPBES, Cost Control, and Cost Benefits
   - B. Testing Programs
   - C. Organizational Structure
   - D. Human Relations Programs

II. Textbook Operation
   - A. To help monitor and establish guidelines necessary for textbook acquisition and control.

III. Research and Evaluation

The establishment of the CURMIS concept and operation is designed to assist the various administrative levels, as well as the educational staff and community to collect selected information necessary to accomplish the following objectives:

Process Objectives to:

. Reflect the philosophy and objectives of the Madison Board of Education and its administrative staff.

. Organize the responsibilities of each subsystem to be logical and harmonious in fulfilling the objectives of the total system.

. Organize functions required for the realization of systems objectives which will be delegated to specific organizational groups (consumers of data information) involved in the CURMIS design.

. Reduce to writing the delegation of functions and responsibilities of each subsystem and of its consumer.

. Allocate among the various organizational units (subsystems) so as to minimize the amount of energy required for coordination, communication and paperwork.

. Provide an open system which will interact with the environment; therefore, the system will have inputs and outputs.

. Identify and eliminate conflicting subsystems and operations which work at cross purposes or as duplicating activities.

Application Objectives to:

. Provide a system which can be used for evaluation of each new program as to its basic objectives and maximum educational benefits.

. Define within predetermined limits based upon information needed; levels of personnel involved, and the cost factor budget.

. Provide information on the costs and impact of curricular projects and auxiliary programs that will serve as a basis for continuation, expansion, or elimination of the project.

. Build and integrate the necessary data processing files (data bank information).

a. Curriculum and Instruction

b. Testing

c. Textbooks

d. Auxiliary Services (example: Specialized Educational Services)

e. Extra-Curricular Activities

f. Research and Evaluation

. Provide greater flexibility resulting in speedier transfer of management decisions to critical points of impact.

. Apply process techniques for handling mixed or coupled informational flows to critical junction points within the system, e.g., the monitoring of text acquisition and control flows.

Curriculum Objectives to:

. Provide guidance to system based on actual data and information specified in program development.

. Help the consumer determine, based on data, priorities in curricular program development.

. Provide a central depository for meaningful data regarding the functions of curricular program development.

. Monitor sequence for learning based upon subject matter, type of learner, and teaching method.

. Relate decision-making to transmission and allocation phases of curriculum structure.

Evaluation Objectives to:

. Integrate the necessary files for evaluation of the systems approach for curricular development and improvement.

. Provide prompt, effective, and efficient data at the level of retrieval information desired.

. Assist consumers to select for analysis appropriate data in the evaluation of the total curricular program.

. Help consumers evaluate new and ongoing programs both vertically and horizontally.

. Provide appropriate data to be used in the total evaluation of the student testing program with emphasis on curricular improvement.

. Maintain a steady state through dynamic interplay of subsystems operating as functional processes.

. Display equifinality; that is, identical results can be obtained from different initial conditions.

. Provide a dynamic set for testing, rebuilding, and retesting.

. Provide feedback information to appropriate levels of users on performance criteria accomplishments.

. Provide a data bank for analysis and research which will focus upon strengthening the organizational structure through the disclosure and elimination of practices that violate established organizational principles.

Stage I

Stage I will initiate the fact-finding, planning, and designing phase of CURMIS necessary for educational direction according to predetermined CURMIS

objectives. While the following tasks are being developed context evaluation procedures will be followed:

I. Determine the "Why" of establishing a CURMIS concept.

II. Determine who will use the data collected in each part of the CURMIS concept.

A. Determine Levels and Kinds of Information (Data) Use.

Educators

1. Superintendent
2. Assistant Superintendent
3. Board of Education
4. Directors
5. Principals
6. Department Chairmen
7. Teachers
8. Others

Community Use

9. Parents
10. Students

III. Determine and establish CURMIS objectives for the total educational operation as well as its sub-parts.

IV. Establish a design for the CURMIS concept with an intermediate manual system for implementation.

V. Establish effecti communication among all levels of users of the CURMIS operation, including vocabulary, semantics, etc.

VI. Establish a calendar of events and dates leading to each stage of CURMIS: planning, implementation, evaluation, and reconstruction.

VII. Establish procedures and support to accomplish the total CURMIS concept.

VIII. Determine operational costs of each phase of CURMIS.

IX. Submit a program for federal funding of CURMIS.

X. Establish a "design" for the implementation of CURMIS beginning with an intermediate manual system.

Emphasis in context evaluation will focus upon:

- Defining the environment.
- Identifying unmet needs through status study.
- Identifying problems underlying unmet needs.
- Recognizing opportunities for change.

Stage II

Stage II begins the application phases of the program. While the following tasks are being developed process evaluation procedures will be followed:

1. Design of the total CURMIS system and subsystems (Total Systems Concept).
2. Involvement and communication of all concerned parties.
3. Simulation of CURMIS model.
4. Determination of monitoring procedures.
5. Organization of Informational Systems.
6. PERT Operation.
7. In-service training for administrators and teachers.

Emphasis in process evaluation will focus upon:

- Detecting and predicting possible defects in the system. Possibly a Markov chain procedure would be employed as a measurement of probability.
- Identifying scope and nature of interpersonal relationships.
- Monitoring communication flows with special attention directed to handling mixed or coupled flows at critical junction points.
- Determining adequacy of resources, staff, time, etc.

Stage III

Stage III completes the application phase of the program. While the following tasks are being developed process evaluation procedures will be followed as outlined above. At a point in the phase determined by the Director the process evaluation activities will be concluded and product evaluation techniques will be employed.

1. Collection of data.
2. Analysis of data.
3. Evaluation of the System Design.
4. Transmission of data and analysis to all parties involved.
5. Analysis of actual cost of CURMIS operation.
6. Evaluation of CURMIS performance.
7. Establishment of decision-making processes.

Emphasis in product evaluation will focus upon:

- How to utilize all resources to satisfy objective functions.
- Identification and assessment of capabilities of curriculum department.

. Refinement of strategies which will be appropriate in meeting objective functions.

. Establishment of designs for each sub-system as it reflects upon objective functions.

. Examination of alternative procedural designs relative to:

- resources, time, and budget
- possible barriers and costs in overcoming barriers
- how designs relate to objective functions and overall ability
- to meet long term objectives.

Stage IV

Stage IV results from product evaluation.

1. Curriculum modification focusing upon -

. Teaching what student lacks, not on what they already possess. Using Dr. Thomas Gilbert's formula (D (deficiency) = M (mastery) - I (initial repertory)) emphasis is placed upon removing from instructional objectives those skills in which students are not deficient.

. Working toward an attitudinal framework which will minimize the accomplishment acquirement disparity. Acquired skills-values placed on skills.

. Knowledge-Execution syndrome which tends to cut efficient use of knowledge.

. Establishment of economic priorities.

2. Redesign of CURMIS system.

3. Reallocation of resources.

CURMIS will provide a knowledge of the educational operation in the Madison Public Schools through the use of intellectual skills rather than through actual sense experiences alone. Desirable and more humanistic as the latter may be, it is becoming increasingly less possible in a school district the size of Madison to function effectively only at this level of analysis. Through the use of Markov chaining concepts CURMIS will provide a visualization of our processes as events move from place to place within our system. Eventually CURMIS will provide the system directors with the opportunity to predict the probability of any given stage of an event and suggest its probabilities at the next stage of development. Such an ability will advance our level of sophistication in the decision-making process through more effective cost-benefit analysis. The overall school structure will be strengthened in its ability to identify and eliminate practices which violate established objective functions in the educational model.

TITLE: PROSPECTUS OF A DESIGN TO ASSIST A HIGH SCHOOL STAFF IN THE EVALUATION OF ITS PROGRAM

PROPOSING AGENCY: DEPARTMENT OF CURRICULUM DEVELOPMENT
MADISON PUBLIC SCHOOLS

TARGET AGENCY: JAMES MADISON MEMORIAL HIGH SCHOOL

DATE: MARCH 22, 1971

I. Introduction

Described in this document is the outline of a model by which high school and curriculum department personnel can team to conduct an evaluation of the program in that high school. The basic intent of such an evaluation would be to feedback to the high school staff data regarding curriculum concerns that could be used to make decisions about program development and resource allocation.

II. Project Objectives

This cooperative project would meet the following objectives:

-- to enable a high school staff to identify questions and concerns it has about the quality and relevance of its instructional program.

-- to gather data against pre-determined criteria by which to answer those questions and probe those concerns.

-- to give curriculum department personnel an opportunity to apply basic concepts inherent in an ultimate Curriculum Management Information System.

-- to pilot a research model for curriculum development.

-- to pilot the concept of an independent educational audit in a local school.

III. Project Guidelines

1. Only questions that have been mutually agreed upon by the high school staff and curriculum department staff will be explored.

2. Each questions will be accompanied by one or more statements of evidence written at three levels of performance:
   ... A strong program exists if ...
   ... An adequate program exists if ...
   ... A problem may exist if ...

3. Each statement of evidence will include criterion levels of performance that have been mutually agreed upon by all concerned before any data is gathered.

4. All evaluation techniques and strategies will be carefully designed and reviewed to insure face validity and internal consistency. Where necessary and possible statistical analysis of validity and reliability may be conducted.

5. The collection and analysis of data will remain the primary responsibility of curriculum staff people, although they may prevail upon teachers for a minimal amount of class time.

6. Sampling techniques, archival data retrieval, interviews, and symptomatic assessment concepts will be used wherever possible to maintain an optimum ceiling on data costs.

IV. Project Safeguards

The curriculum department well understands that data represents power and is consequently threatening to people. We would therefore propose the following safeguards to insure that the data is used ethically.

1. Individual teachers and their programs will not be identified in any way. Should individual teachers request feedback about their specific programs, a personal numbering system will be used to insure anonymity.

2. Curriculum Department staff will under no circumstances share the data or the conclusions and implications drawn from the data with other personnel in the central office or schools. Any release of that data or conclusions drawn from it will be at the discretion of and through the decision of the high school principal and his staff.

3. Although Curriculum Department personnel will provide an analysis of the data, conclusions and implications to be drawn from the data will be prepared jointly by high school staff members and curriculum department personnel. Decisions on program change or development remain the responsibility of the principal and his staff.

4. Personnel other than the high school staff or curriculum department staff will be involved only by mutual invitation or consent of the principal and the director of curriculum.

V. Operational Steps

1. An orientation and planning meeting will be conducted between appropriate high school personnel and curriculum personnel, e.g., a department chairman and a coordinator.

2. Personnel responsible for a program area, e.g., the math department, will meet with the coordinator to determine one to five program questions for which they would like to gather data. A nominal grouping design will be utilized to insure that the task is carried out efficiently.

3. Curriculum Department personnel will prepare statements of evidence with criterion levels. These will be reviewed by a working committee of three people from the program area. They will also be reviewed by the principal and his administrative staff. Adjustments will be negotiated in writing.

4. A design for gathering and analyzing the data, complete with necessary tests and instruments, will be put together by Curriculum Department personnel and reviewed by appropriate high school personnel. The signature of the principal will be required on each design before data can be gathered.

5. Curriculum Department personnel will come into the school according to a pre-determined schedule worked out cooperatively by the principal and the director of curriculum. These personnel will gather the necessary data with the cooperation of appropriate teachers and students.

6. Curriculum Department personnel will conduct an analysis of the data and prepare a written summary. They will return to the high school with that summary, explain the findings to the staff, and participate in the development of conclusions and implications. They will also prepare a written review of these conclusions and implications for the consumption of the staff in the form of a completed report.

7. All data and subsequent conclusions and implications will be returned to the high school.

8. Proposals to change program will be initiated by the high school staff. Involvement of curriculum department personnel will be by their invitation.

VI. Project Evaluation

The following steps are planned to help evaluate the success of this project.

1. All questions generated by the staff will be reproduced and assembled into a report to the staff.

2. An independent auditor external to the school system will be invited to evaluate the total design, including question generation, statements of evidence, instrumentation, and data analysis design. If the high school staff consents, he will also be invited to examine the data and the conclusions.

3. A questionnaire will be administered to all involved personnel to assess their perceptions of the efficiency, effectiveness, and results of the project.

4. The ultimate test of the project will lie in whether or not the high school staff has sufficient confidence in the data to make decisions from it.

VII. Exemplars

The questions and statements of evidence which follow are exemplary only. We would expect to work with the staff in generating its own concerns. Not all disciplines are included in this document, although we would expect all to be involved in the project.

ENGLISH-LANGUAGE ARTS

ISSUE: ARE STUDENTS ABLE TO MANIPULATE BASIC COMMUNICATION CONCEPTS?

A strong program exists if ...

...asked to define "communication", 90 per cent of a random sample of students can describe (in their own words) communication as a process involving a sender, message, receiver, intent, impact, and feedback.

...asked to identify the purposes people have for communication, 90 per cent or more of a random sample of students can list three or more contrasting communicative purposes such as inform, impress, convince, persuade, influence, move to action, entertain.

...given the task of constructing two written messages, each with a different purpose and/or for a different audience, 90 per cent or more of a random sample of students can produce messages with contrasting intent and/or audience appeal.

...asked to extract the central idea of and the sender's attitude toward the subject of a local newspaper editorial, a local television commercial, and a local news story, 90 per cent or more of a random sample of students can accurately list the thesis and sender's point of view of the given message.

...given a particular message in a particular communication situation, 85 per cent or more of a random sample of students can evaluate the effectiveness of that message by establishing criteria appropriate to the given communication situation and holding the message up to those criteria.

An adequate program exists if ...

...criteria (1), (2), and (3) above are met.

...at least 80 per cent of a random sample of students can meet criteria (4) above.

...at least 75 per cent of a random sample of students can meet criteria (5) above.

A problem may exist if ...

...the criteria for an adequate program are not met.

ISSUE: DO STUDENTS AND TEACHERS PERCEIVE THE CURRENT LANGUAGE ARTS PROGRAM AS MEETING THE COMMUNICATION NEEDS OF STUDENTS?

A strong program exists if ...

...asked to list their personal needs and desires related to communication behaviors, 90 per cent or more of a random sample of students indicate that at least 75 per cent of their personal communication needs and desires are being satisfied by their current English/language arts instructional program.

...given an attitudinal inventory, 90 per cent or more of a random sample of students find their English/language arts instruction generally important and interesting.

...given an attitudinal survey, 90 per cent or more of a random sample of students indicate that they would nearly always attend their English class even if attendance were not required.

...given an attitudinal survey, 90 per cent or more of a random sample of students indicate that they perceive their English teacher as knowing and/or caring what their individual communication problems are.

...given a questionnaire, 90 per cent or more of a random sample of students indicate as much involvement in selecting and directing their own learning in English class as they would prefer.

...given a questionnaire, 90 per cent or more of the English teachers perceive that (1) their instruction meets the needs of, seems important to, and is interesting for at least 90 per cent of their students, and (2) their students play an active role in determining their own instructional direction at least 75 per cent of the time.

An adequate program exists if ...

...at least 75 per cent of a random sample of students meet criteria (1), (2), (3), (4), and (5) above.

...at least 75 per cent of the English teachers meet criteria (5) above.

A problem may exist if ...

...the criteria for an adequate program are not met.

...in responses to questionnaires, a majority of the English teachers perceive their instruction generally meeting the needs of, seeming important to, and being interesting for their students, whereas a majority of a random sample of students generally perceive the opposite.

FOREIGN LANGUAGE

ISSUE: ARE RESULTS OF THE FOREIGN LANGUAGE PROGRAM SATISFACTORY WHEN COMPARED TO THOSE ACHIEVED ELSEWHERE IN THE NATION?

An excellent program exists if ...

...60 per cent of the students enrolled in foreign language courses at Memorial have scores on a standardized test (MIA) equal to or higher than the mid-percentile rank on national norms.

...the attrition rate of students in foreign language courses at Memorial is not greater than 15 per cent after the first year, 65 per cent (of the original population) after the second year, 80 per cent after the third year.

An adequate program exists if ...

...50 per cent of the students enrolled in foreign language courses at Memorial have scores on a standardized test (MIA) equal to or higher than the mid-percentile rank on national norms.

...the attrition rate of students in foreign language courses at Memorial is not greater than 20 per cent after the first year, 70 per cent (of the original population) after the second year, 85 per cent after the third year.

A problem may exist if ...

...less than 50 percent of the students enrolled in foreign language courses at Memorial have scores on a standardized test (MIA) equal to or higher than the mid-percentile rank on national norms.

...the attrition rate of students in foreign language courses at Memorial is 25 per cent or more after the first year, 75 per cent or more (of the original population) after the second year, 90 per cent or more after the third year.

ISSUE: DO STUDENTS WHO FAIL OR DROP OUT OF A FOREIGN LANGUAGE COURSE EITHER DURING THE YEAR OR AT THE END OF THE FIRST LEVEL (EXCLUDING SENIORS) DISPLAY A COMMONALITY IN BACKGROUND CHARACTERISTICS?

An excellent program exists if ...

...when compared to an equal number of randomly selected successful (passing, continuing) students, those students can be differentiated by certain educational variables statiscally significant at the .01 level.

An adequate program exists if ...

...when compared to an equal number of randomly selected successful (passing, continuing) students, those students can be differentiated by certain educational variables statistically significant at the .05 level.

A problem may exist if ...

...the level of significance is greater than .05.

HOME ECONOMICS - FAMILY LIVING

ISSUE: ARE WOMEN IN HIGH SCHOOL GIVEN EQUAL OPPORTUNITY TO PURSUE CAREER DEVELOPMENT AND RELATED WAGE EARNING SKILLS?

A strong program exists if ...

...more than 95 per cent of a random sample of fifty twelfth grade women not anticipating college enrollment will identify five marketable skills they have acquired in high school.

An adequate program exists if ...

...more than 90 per cent of the above sample identify five marketable skills acquired in high school.

A problem may exist if ...

...10 percent or more of a random sample of twelfth grade women not anticipating college enrollment, fail to identify five marketable skills acquired in high school.

A strong program exists if ...

...when given a list of twenty entry level jobs typical of the kind high school women graduates seek, 95 per cent of a random sample of 100 twelfth grade women will judge themselves to be very competitive in actively seeking these jobs.

An adequate program exists if ...

...when given the above list, 85 per cent of the sample judge themselves to be very competitive.

A problem may exist if ...

...more than 15 per cent of the sample judge themselves to be less than very competitive in seeking the identified entry level jobs.

A strong program exists if ...

...within the total enrollment of capstone courses the numbers of men and women enrolled are approximately equal and/or are equivalent to the male-female percentage in the total school population. The same equality factor will be evident in the number of capstone course options typically chosen by each sex.

An adequate program exists if ...

...the above conditions will be met in the 1971-72 school year as per advance program information.

A problem may exist if ...

...equality is not evidenced for the 1970-71 program and/or documented for the 1971-72 school year.

ISSUE: ARE HIGH SCHOOL GRADUATES PREPARED TO SURVIVE IN A CREDIT ORIENTED ECONOMY?

A strong program exists if ...

...on a twenty item test on credit a random sample of twelfth graders will score 95 per cent or better.

An adequate program exists if ...

...the sample scores are between 90-95 per cent.

A problem may exist if ...

...the sample scores less than 90 per cent.

A strong program exists if ...

...when given an automobile sales contract and related information, a random sample of eleventh graders will accurately compute its cost and correctly answer ten related questions about the contract.

An adequate program exists if ...

...95-99 per cent of the sample computes the contract cost accurately and 95-99 per cent of the sample achieves 90 per cent or greater accuracy on the ten related questions.

A problem may exist if ...

...more than 5 per cent of the sample compute the contract cost inaccurately and more than 5 per cent inaccurately answer more than one of the ten related questions.

MUSIC

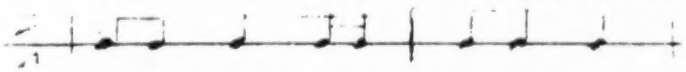
ISSUE: DOES THE MUSIC EDUCATION CURRICULUM IN ITS INSTRUCTIONAL PROGRAM PROVIDE FOR MUSIC LITERARY?

A strong program exists if ...

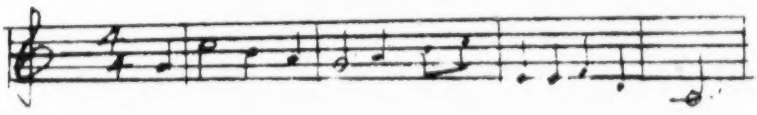
...100 per cent of our instrumentalists qualify for musical organizations of higher learning.

...90 per cent of our vocalists qualify for vocal organizations of higher learning.

...80 per cent can notate from dictation a simple rhythm, e.g.,



...60 per cent can notate from dictation a simple melodic phrase, e.g.,



An adequate program exists if ...

...90 per cent of our instrumentalists qualify for musical organizations of higher learning.

...80 per cent of our vocalists qualify for vocal organizations of higher learning.

...70 per cent can notate from dictation a simple rhythm.

...50 per cent can notate from dictation a simple melodic phrase.

A problem may exist if ...

...less than 80 per cent of our instrumentalists qualify for musical organizations of higher learning.

...less than 70 per cent of our vocalists qualify for vocal organizations of higher learning.

...less than 40 per cent can notate from dictation a simple rhythm.

...less than 20 per cent can notate from dictation a simple melodic phrase.

ISSUE: IS THE INSTRUMENTAL MUSIC PROGRAM RELEVANT ENOUGH TO DEVELOP SELF-MOTIVATION?

A strong program exists if ...

...only 20 per cent of beginning elementary string pupils drop out after one year.

...only 15 per cent of beginning middle school band pupils drop out after one year.

...only 10 per cent of all instrumentalists drop out after middle school.

...only 5 per cent of all instrumentalists drop out during a four year senior high school program.

An adequate program exists if ...

...only 25 per cent of beginning elementary string pupils drop out after one year.

...only 20 per cent of beginning middle school band pupils drop out after one year.

...only 15 per cent of all instrumentalists drop out after middle school.

...only 10 per cent of all instrumentalists drop out during a four year senior high school program.

A problem may exist if ...

...more than 35 per cent of beginning elementary string pupils drop out after one year.

...more than 25 per cent of beginning middle school band pupils drop out after one year.

...more than 10 per cent of all instrumentalists drop out after middle school.

...more than 10 per cent of all instrumentalists drop out during a four year senior high school program.

READING

ISSUE: DO TEACHERS PROVIDE INSTRUCTION ON HOW TO READ MATERIALS THEY ASSIGN?

An excellent program exists if ...

...given a random sample of 30 students from each grade and their average scores on a ten item inventory regarding the nature of instruction that typically accompanies reading assignments, 90 per cent of the students will score on the average 3.0 or higher on a 5 point Likert scale.

An adequate program exists if ...

...given the above conditions, between 50 and 90 per cent of the students will score on average 3.0 or higher on a 5 point Likert scale.

A problem may exist if ...

...given the above conditions, less than 50 per cent of the students will score on the average 3.0 or higher on a 5 point Likert scale.

ISSUE: DO READING CONSULTANTS AFFECT THE TEACHER'S BEHAVIOR IN TERMS OF READING INSTRUCTION?

An excellent program exists if ...

...given the names of 20 teachers identified by the consultant as having received consultant services, 90 per cent are able to list a concrete example of implementing strategies for teaching reading that had been devised cooperatively by the teacher and consultant.

An adequate program exists if ...

...given the above conditions, 75 to 90 per cent are able to list a concrete example.

A problem may exist if ...

...given the above conditions, less than 75 per cent are able to list a concrete example.

ISSUE: DO STUDENTS APPLY CRITICAL THINKING IN THEIR READING?

An excellent program exists if ...

...given a random sample of 90 twelfth grade students to whom the Watson-Glaser Critical Thinking Test has been administered, 65 per cent or more of the students score above 50 percentile of national norms.

An adequate program exists if ...

...given the above conditions, 50 to 65 per cent of the students score at or above the 50 percentile of national norms.

A problem may exist if ...

...given the above conditions, less than 50 per cent of the students score at or above the 50 percentile of national norms.

ISSUE: DO TENTH GRADE TEACHERS PROVIDE INSTRUCTION THAT WILL CAUSE STUDENTS TO ATTEND TO THE ORGANIZATION OF MATERIALS ASSIGNED?

An excellent program exists if ...

...given a random sample of 60 tenth grade students, 85 per cent will be able to write an adequate summary of a selection assigned by their respective teachers. The adequacy will be determined by two independent judges using predetermined criteria.

An adequate program exists if ...

...given the same conditions, 60 to 85 per cent of the students will be able to write an adequate summary.

A problem may exist if ...

...given the same conditions, less than 60 per cent of the students will be able to write an adequate summary.

ISSUE: DO TEACHERS IN A BUILDING PERCEIVE THE ROLE OF THE READING CONSULTANT IN THE SAME MANNER THE READING CONSULTANT PERCEIVES THE ROLE?

An excellent program exists if ...

...given the ten highest ranked reading consultant roles desired by the teachers as determined by a role perception inventory, eight of them are the same as the top ten listed by the reading consultant.

An adequate program exists if ...

...given the same conditions, 5 to 7 of the reading consultant roles desired are the same as the top ten listed by the reading consultant.

A problem may exist if ...

...given the same conditions, less than 5 of the reading consultant roles desired are the same as the top ten listed by the reading consultant.

SCIENCE

ISSUE: DO STUDENTS AND TEACHERS PERCEIVE THE SCIENCE PROGRAM AS PROVIDING NECESSARY LEARNINGS FOR INDIVIDUAL AND SOCIETAL GOALS?

A strong program exists if ...

...more than 80 per cent of 30 college freshman chosen at random from last year's graduates of Memorial High School respond favorably to a questionnaire regarding their science background via courses they have completed during high school.

...more than 75 per cent of 20 randomly selected senior students enrolled in advance science courses perceive previous courses as helpful in their performance during present courses.

...more than 70 per cent of 20 Memorial faculty members selected at random from departments other than science view the science program as meeting the general educational goals of 75 per cent of the high school students.

...more than 75 per cent of 40 randomly selected parents of students presently participating in the science program indicate that they feel the program meets both (1) individual pupil needs and (2) general educational goals.

...more than 80 per cent of 30 randomly selected ninth grade students respond favorably to a questionnaire regarding their plans to enroll in an additional science course during high school.

...more than 75 per cent of a randomly selected student sample not taking science at each grade level indicate that the science program is meeting the general educational goals of 75 per cent of the high school students.

An adequate program exists if ...

... more than 65 per cent ...

... more than 50 per cent ...

... more than 50 per cent ...

... more than 50 per cent ...

... more than 60 per cent ...

... more than 50 per cent ...

A problem may exist if ...

...less than 40 per cent ...

...less than 40 per cent ...

...less than 30 per cent ...

...less than 40 per cent ...

...less than 50 per cent ...

...less than 25 per cent ...

ISSUE: DO THE SCIENCE CURRICULUM AND INSTRUCTIONAL PROGRAM RELATE TO HUMANISTIC OR SELF-REALIZATION GOALS?

A strong program exists if ...

...more than 75 per cent of a random sample from each grade level enrolled in a science course find their class motivating and stimulating according to an attitudinal inventory.

...more than 90 per cent of a random sample from each grade level enrolled in a science course indicate via an attitudinal inventory that they perceive their science teacher as concerned about the individual student's welfare.

...more than 80 per cent of a random sample of students from each grade level enrolled in a science course indicate on an attitudinal survey that they are satisfied with the degree of involvement in selecting and directing their own learning in these classes.

...more than 90 per cent of a random sample of students from each grade level enrolled in a science course indicate on an attitudinal survey that the science teacher encourages student success on an individual basis.

...more than 75 per cent of a random sample of students from each grade level enrolled in a science class indicate on an attitudinal survey that their science classes exhibit a direct correlation with social studies classes.

An adequate program exists if ...

...more than 50 per cent ...

...more than 75 per cent ...

...more than 60 per cent ...

...more than 75 per cent ...

...more than 50 per cent ...

A problem may exist if ...

...less than 30 per cent ...

...less than 50 per cent ...

...less than 50 per cent ...

...less than 60 per cent ...

...less than 30 per cent ...